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PATENT TRADEMARK OFFICE

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE APPLICATION OF

DOCKET No.: 2964R

STACHEW ET AL.

SERIAL No.: 09/659,132

EXAMINER: J. JOHNSON

FILED: SEPTEMBER 11, 2000

GROUP ART UNIT: 1764

TITLE: MODIFIED POLYISOBUTYLENE SUCCINIMIDE DISPERSANTS HAVING
IMPROVED SEAL, SLUDGE, AND DEPOSIT PERFORMANCE

Wickliffe, Ohio

Mail Stop AF
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. §1.132

I, William D. Abraham, declare as follows:

I previously submitted a Declaration in this case, signed by me on October 10, 2001. My experience, qualification, and responsibilities have not significantly changed since that time.

In order to complete the disclosure of results that were mentioned in my earlier Declaration, I report herewith the data obtained from the MTU FKM Fluorinated seals test, using the same samples described before:

I certify that this correspondence is being transmitted by telefax to ~~703-305-3500~~ (No. of pages: _____)

on _____ By: _____

Example:	1 (comp.)	2	3	4 (comp.)
% low m.w. (<500 m.w.) substituent→	7.1	15.4	18.6	21.4
FKM Hardness change, points	-1	-1	-2	-2
FKM Volume change, %	0.8	0.8	0.8	0.8
FKM Tensile strength change, %	-23.1	-31.2	-31.5	-38.9
FKM Elongation at rupture, %	-24.3	-32.1	-33.8	-39.3
Overall FKM assessment	Pass	Pass	Pass	Pass

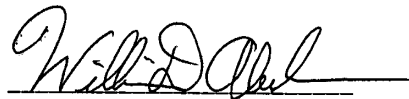
As I stated in my previous declaration, all samples satisfactorily met or exceeded the passing criteria established for this test, although the 24.1% material exhibited only a borderline pass, and the 7.1% material passed with somewhat better scores in some of the evaluations than the other materials.

The deleterious effects of nitrogen-containing dispersants on fluoroelastomer seals is dependent upon a number of factors, including the CO:N ratio in the dispersant, which is discussed in the text of the Application on page 24. In order to make the comparison with the dispersant of the Diana reference a dispersant with a CO:N ratio of 1:1.3 was used. Normally, dispersants with this high of nitrogen (TBN) content at a treat level greater than 3% (oil free) would produce failing results with fluoroelastomer seals. In the examples reported in the table above, the batch of fluoroelastomer seal material appears to have been unusually resistant to attack by the dispersant, as compared to typical seal materials. Nonetheless, the data in the table above still exhibits the trend that the lower amount of low molecular weight material in the dispersant produces better fluoroelastomer seal performance. The tensile strength values of -31.2 and -31.5 from the 15.4% and 18.6% percent low MW dispersant substituents, respectively is better than the reference sample containing 21.4% low molecular weight substituent of -38.9 tensile strength. In the remaining tests reported in my earlier Declaration, the results show unexpected improvement, especially in the Soot T-8 test, particularly at 0.5%, and remarkable improvement in the Sludge test #1173E. Also, the samples of the invention show less change in viscosity between low and high temperatures than does that 7.1% sample. Consequently, the best dispersants

for balancing good soot-handling, sludge, seals, blend viscosity, and corrosion performance were surprisingly those with low MW dispersant substituents between 15% and 20%.

I find these results are unexpected because I am unaware of any particular reason to believe that having a limited – but not too low – amount of very low molecular weight polymeric substituent should lead to any improvement in most of these properties. Moreover, the fact that each of these multiple properties is improved simultaneously is unusual, but very advantageous.

I further declare that all statements herein made of my own knowledge are true and all statements herein made on information and belief are believed to be true. I understand that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.



William D. Abraham

7/15/03

date